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5 **UNITED STATES DISTRICT COURT**
6 **WESTERN DISTRICT OF WASHINGTON**

7
8 SEOUL SEMICONDUCTOR CO., LTD.,
9 and SEOUL VIOSYS CO. LTD.,

10 Plaintiffs,

11 v.

12 BFG SUPPLY CO., LLC.

13 Defendant.

Case No. 3:25-cv-5637

**COMPLAINT FOR PATENT
INFRINGEMENT**

JURY TRIAL DEMANDED

14 Plaintiffs Seoul Semiconductor Co., Ltd. and Seoul Viosys Co. Ltd. (collectively “Seoul”
15 or “Plaintiffs”) bring this Complaint against Defendant BFG Supply Co., LLC (“BFG”), and state
16 and allege as follows:

17 **NATURE OF THE ACTION**

18 1. The Plaintiffs bring this patent infringement action to protect their valuable
19 patented technology relating to light emitting diodes (“LEDs”) and LED lighting. An LED is a
20 semiconductor device that converts electrical energy into light. LEDs have many advantages over
21 conventional light sources, including lower energy consumption, longer lifetime, and smaller size.

22 2. Seoul Semiconductor was founded in 1992 with approximately 30 employees in a
23 small space of a commercial building in Bongchen-dong, Seoul, Korea. From those initial 30
24 employees, Seoul Semiconductor has grown into one of the largest manufacturers of LEDs in the
25 world. Its subsidiary, Seoul Viosys, is also a leading company in the LED industry.

26 3. The Plaintiffs’ success is in large part due to their significant investment in
27

1 innovation and their respect for intellectual property. Seoul Semiconductor has invested in research
2 and development (“R&D”) for decades. Seoul Semiconductor invests over 10% of sales revenue
3 into R&D and owns one of the largest LED patent portfolios in the world, which includes more
4 than 10,000 patents worldwide.

5 **THE PARTIES**

6 4. Plaintiff Seoul Semiconductor is a company organized and existing under the laws
7 of the Republic of Korea, with its principal place of business at 97-11, Sandan-ro 163 beon-gil,
8 Danwon-gu, Ansan-city, Gyeonggi-do, Korea 425-851.

9 5. Plaintiff Seoul Viosys is a company organized and existing under the laws of the
10 Republic of Korea, with its principal place of business at 65-16, Sandan-ro 163 beon-gil, Danwon-
11 gu, Ansan-city, Gyeonggi-do, Korea 425-851. Seoul Viosys is a subsidiary of Seoul
12 Semiconductor.

13 6. Upon information and belief, Defendant BFG is a corporation, organized and
14 existing under the laws of Indiana, with one or more regular and established places of business in
15 this District at least at 2507 Frank Albert Rd, Suite C-130 Fife, WA 98424.

16 **JURISDICTION AND VENUE**

17 7. This Court has subject matter jurisdiction over this action under 28 U.S.C. §§ 1331
18 and 1338(a) because this action arises under the patent laws of the United States, including 35
19 U.S.C. § 271 *et seq.*

20 8. This Court has specific and general personal jurisdiction over Defendant consistent
21 with the requirements of the Due Process Clause of the United States Constitution and the
22 Washington Long Arm Statute. Defendant has sufficient minimum contacts with this forum
23 because Defendant has physical locations and transacts substantial business in the State of
24 Washington and in this Judicial District. Further, Defendant has committed and continues to
25 commit acts of patent infringement in the State of Washington and in this Judicial District as
26 alleged in this Complaint, as alleged more particularly below.

27 9. Venue is proper in this Judicial District pursuant to 28 U.S.C. § 1400(b). BGF has

transacted business in this Judicial District, has committed acts of infringement in this Judicial District, and has one or more regular and established places of business in this Judicial District. More specifically, BFG operates a facility at 2507 Frank Albert Rd, Suite C-130 Fife, Washington 98424, from which it completes infringing sales. The image below is an invoice showing the completed sale of an example infringing product from the Fife location.

bfg BFG Supply
PO Box 479
Barton, OH 44021
(800)624-2517 Website: www.bfgsupply.com
Email: info@bfgsupply.com

PACKING SLIP

Placed by: Ack Date: Order #
04/14/25 2917622-60
PO # Page #
none 1

Ship To: Garrett Gambino
2415 Harcourt Drive
San Diego, CA 92123
718-724-9212

Correspondence To: BFG Supply
PO Box 479
Barton, OH 44021
(800)624-2517

Cust #: 835368
Bill To: LED GROW LIGHTS DEPOT
8528 NE HOLLADAY ST
PORTLAND, OR 97226-5825

Invoice Date: 04/14/25
Invoice # 2917622-60
Ship Point: BFG Supply W22 Fife
Feds GC: 04/14/25

To provide you with exceptional customer service please report any issue within 1 business day

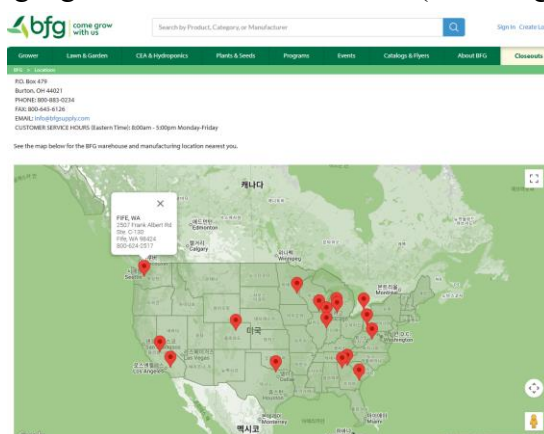
Ln	Product # and Description	UPC Item #	Quantity Ordered	Quantity Shipped	Unit	Unit Price	Total Price	Net Amount
1	HGC596415 Gavita NA CT2000x LED 208-480V Carton #: C002483235 Qty: 1.00 EA	84996001085	1	1	EA	1149.00		
2	HGC596204 Gavita 8" 3 Pin Power Cord 208-240 V Carton #: C002483235 Qty: 1.00 EA	84996001112	1	1	EA	19.99		

Ship To Phone: 718-724-9212
This Order is Contained in the Following:
Cartons: C002483235 C002483236

Any issues with this delivery MUST be reported within 1 business day from receipt of goods.
To report issues contact BFG Supply at: PH: 1-800-883-0234 Fax: 1-866-720-6967 Email: customer@bfgsupply.com

Page 1 of 1 Printed: 04/14/25 03:16 PM

In addition, BFG's website <https://www.bfgsupply.com> identifies that location (see below left) and the signage at that location is shown (below right).



1 BFG is subject to personal jurisdiction in this Judicial District and has committed acts of
2 patent infringement in this Judicial District. On information and belief, BFG through its own acts
3 and/or through the acts of others, makes, uses, sells, offers to sell, and/or imports infringing
4 products within this Judicial District, regularly does and solicits business in this Judicial District,
5 and has the requisite minimum contacts with the Judicial District, such that this venue is a fair and
6 reasonable one.

7 **PATENTS-IN-SUIT**

8 10. Seoul Viosys is the lawful owner of all right, title, and interest in United States
9 Patent No. 12,274,893 (“the ’893 patent”) entitled “LED lighting apparatus having sterilizing
10 function”, including the right to sue and to recover for infringement thereof. The ’893 patent was
11 duly and legally issued on April 15, 2025, by the United States Patent and Trademark Office. A
12 copy of the ’893 patent is attached hereto as Exhibit A.

13 11. Seoul Viosys is the lawful owner of all right, title, and interest in United States
14 Patent No. 8,872,419 (“the ’419 patent”) entitled “Light emitting device”, including the right to
15 sue and to recover for infringement thereof. The ’419 patent was duly and legally issued on
16 October 28, 2014, by the United States Patent and Trademark Office. A copy of the ’419 patent is
17 attached hereto as Exhibit B.

18 12. Seoul Viosys is the lawful owner of all right, title, and interest in United States
19 Patent No. 12,194,174 entitled “Lighting device” (“the ’174 patent”), including the right to sue
20 and to recover for infringement thereof. The ’174 patent was duly and legally issued on January
21 14, 2025, by the United States Patent and Trademark Office. A copy of the ’174 patent is attached
22 hereto as Exhibit C.

23 13. Seoul Semiconductor is the lawful owner of all right, title, and interest in United
24 States Patent No. 11,978,837 (“the ’837 patent”) entitled “Light emitting diode package”,
25 including the right to sue and to recover for infringement thereof. The ’837 patent was duly and
26 legally issued on May 7, 2024, by the United States Patent and Trademark Office. A copy of the
27 ’837 patent is attached hereto as Exhibit D.

1 14. Seoul Semiconductor is the lawful owner of all right, title, and interest in United
2 States Patent No. 12,298,552 (“the ’552 patent”) entitled “Backlight unit and display apparatus
3 having the same”, including the right to sue and to recover for infringement thereof. The ’552
4 patent was duly and legally issued on May 13, 2025, by the United States Patent and Trademark
5 Office. A copy of the ’552 patent is attached hereto as Exhibit E.

6 15. Seoul Semiconductor is the lawful owner of all right, title, and interest in United
7 States Patent No. 8,314,440 (“the ’440 patent”) entitled “Light emitting diode chip and method of
8 fabricating the same”, including the right to sue and to recover for infringement thereof. The ’440
9 patent was duly and legally issued on November 20, 2012, by the United States Patent and
10 Trademark Office. A copy of the ’440 patent is attached hereto as Exhibit F.

11 16. Seoul Viosys is the lawful owner of all right, title, and interest in United States
12 Patent No. 10,217,912 (“the ’912 patent”) entitled “Light emitting diode module for surface mount
13 technology and method of manufacturing the same”, including the right to sue and to recover for
14 infringement thereof. The ’912 patent was duly and legally issued on February 26, 2019, by the
15 United States Patent and Trademark Office. A copy of the ’912 patent is attached hereto as Exhibit
16 G.

17 17. Seoul Viosys is the lawful owner of all right, title, and interest in United States
18 Patent No. 9,041,032 (“the ’032 patent”) entitled “Light emitting diode having strain-enhanced
19 well layer”, including the right to sue and to recover for infringement thereof. The ’032 patent was
20 duly and legally issued on May 26, 2015, by the United States Patent and Trademark Office. A
21 copy of the ’032 patent is attached hereto as Exhibit H.

22 **DEFENDANT’S KNOWLEDGE**

23 18. On June 20, 2025, Seoul Semiconductor sent a warning letter to BFG notifying it
24 that BFG was infringing the Plaintiffs’ patent rights. Seoul Semiconductor wrote that BFG was
25 selling a product, the HGC906409 Gavita Pro RS 2400e LED 208-480V (“Gavita Pro RS”), that
26 infringes several of the Plaintiffs’ patents, including the ’893, ’419, ’174, ’837, ’552, ’440, ’912,
27 and ’032 patents.

19. With its letter, Seoul Semiconductor attached claim charts demonstrating how the foregoing Gavita Pro RS being sold by BFG infringes claims of the Plaintiffs' patents. The claim charts contain pictures of the Gavita Pro RS along with photos of reverse engineered portions of the products to show infringement.

20. Seoul Semiconductor asked that BFG confirm that it would stop selling products that infringe Seoul's patent rights. Despite this, BFG continues selling the accused Gavita Pro RS even after receiving Seoul Semiconductor's warning letter.

PATENT MARKING

21. The Plaintiffs have complied with 35 U.S.C. § 287 with respect to at least the '419, '440, '912, and '032 patents, and thereby provided notice to the public, including but not limited to Defendant, of those patents.

22. For example, to the extent the Plaintiffs made, offered for sale, sold, or imported into the United States products covered by the Patents-in-Suit, the Plaintiffs marked substantially all of such products and/or product packaging by fixing thereon the word "patent," along with those patent numbers or an internet address at which the Plaintiffs posted information associating the patented products with their corresponding patent numbers (including the Patents-in-Suit), in compliance with 35 U.S.C. § 287.

23. Those internet addresses include the following URLs <https://www.seoulsemicon.com/en/company/parent/certificates/patentportfolio> and <https://www.seoulviosys.com/en/company/certificates> — and reflect virtual marking patent lists that the Plaintiffs that have been continuously updating since at least January of 2015. A copy of the most recent virtual marking patent lists for Seoul Semiconductor and Seoul Viosys, respectively, are attached as Exhibit I and Exhibit J.

COUNT 1

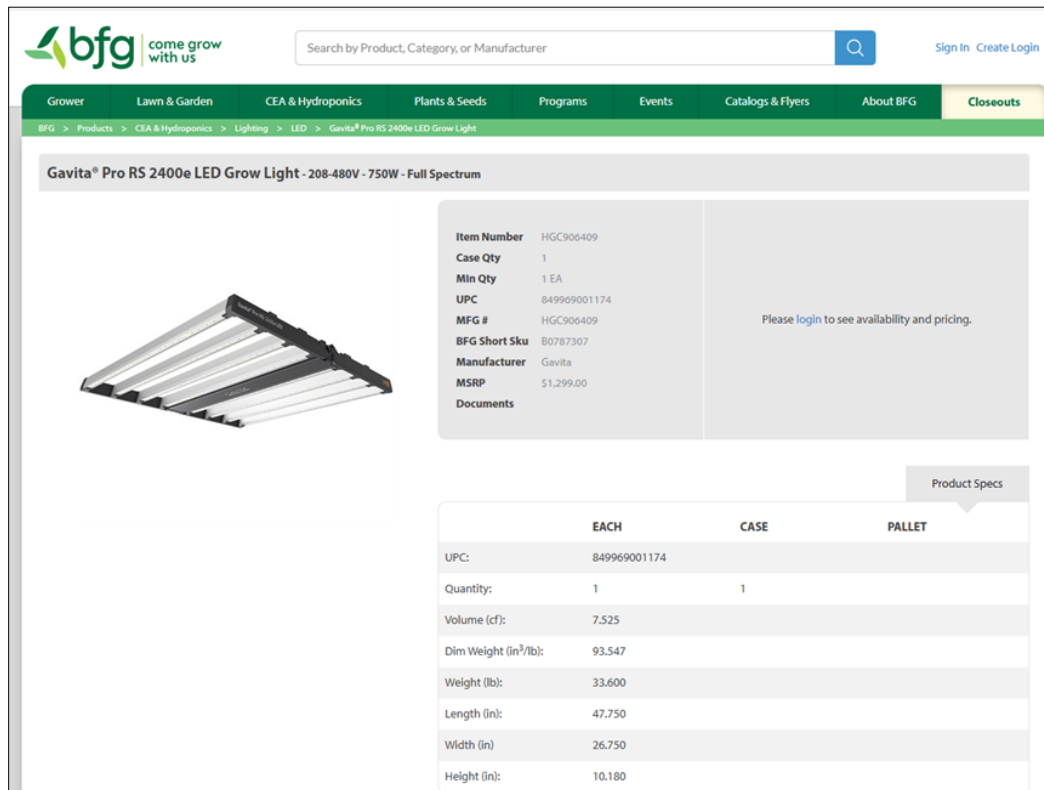
INFRINGEMENT OF U.S. PATENT NO. 12,274,893

EXEMPLARY CLAIM 1

24. Defendant has infringed and continues to infringe one or more claims of the '893

1 patent, including but not limited to exemplary claim 1, pursuant to 35 U.S.C. § 271(a), at least by
 2 without authority making, using, offering to sell and/or selling the Gavita Pro RS 2400e LED 208-
 3 480V (“Gavita Pro RS”) and Gavita CT 2000e LED 208-480V (“Gavita CT”) within the United
 4 States.

5 25. The Gavita Pro RS is an LED-based lighting apparatus. Product information for the
 6 Gavita Pro RS from BFG’s website is reproduced below showing that it is an LED based light.



Gavita® Pro RS 2400e LED Grow Light - 208-480V - 750W - Full Spectrum

Item Number	HGC906409
Case Qty	1
Min Qty	1 EA
UPC	849969001174
MFG #	HGC906409
BFG Short Sku	B0787307
Manufacturer	Gavita
MSRP	\$1,299.00
Documents	

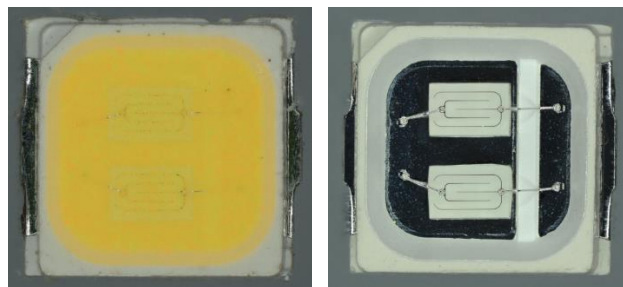
Please [login](#) to see availability and pricing.

	EACH	CASE	PALLET
UPC:	849969001174		
Quantity:	1	1	
Volume (cf):	7.525		
Dim Weight (in³/lb):	93.547		
Weight (lb):	33.600		
Length (in):	47.750		
Width (in):	26.750		
Height (in):	10.180		

20 26. Below are two images. The first shows the Gavita Pro RS within its packaging and
 21 the second shows a close-up view of a light bar having two different types of LEDs, white LEDs
 22 which appear yellow and red LEDs, which appear red.

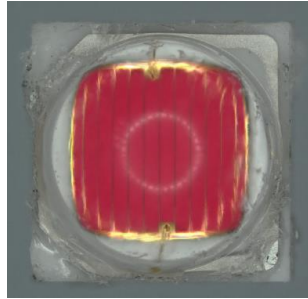


27. The images provide two views of an example white light emitting device. The image below-left shows a pair of blue-light emitting LEDs covered by a yellow wavelength converter to generate white light. The image below-right shows the blue LEDs after the removal of the wavelength converter. The wavelength converter includes distinct types of wavelength conversion substances including Yttrium-based and Strontium-based converters. The peak wavelength of the device is within the blue spectral range between 430 and 470 nanometers.



28. The image below depicts an example red LED, which has a peak wavelength different from a peak wavelength of light emitted by the above-described white light emitter. The peak wavelength of the red LED is within the range from 605 and 935 nanometers. The light emitted by the red LED includes a region in an irradiance spectrum having an irradiance that is

greater than an irradiance of the light emitted from the white light emitting device at the same wavelength.



29. BFG's instructs purchasers of the Gavita Pro RS to operate "[u]sing the Gavita® Master EL3 Controller." <https://www.bfgsupply.com/order-now/product/0/865094/gavita-pro-rs-2400e-led-208-480v>. The manual for the EL3 Controller explains that it is a lighting controller for BFG's compatible fixtures.

30. The Gavita CT is an LED-based lighting apparatus. Product information for the Gavita CT from BFG's website is reproduced below showing that it is an LED based light.

Gavita® CT2000e Compact LED Toplight - 208-480V - 650W - Full Spectrum

Item Number	HGC906415
Case Qty	1
Min Qty	1 EA
UPC	849969001693
MFG #	HGC906415
BFG Short Sku	B0787306
Manufacturer	Gavita
MSRP	\$1,149.00
Documents	

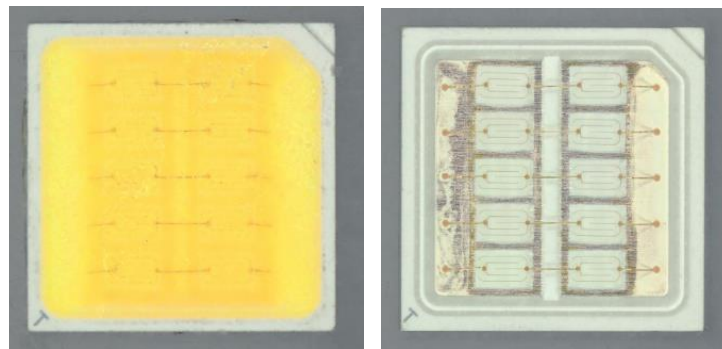
Please login to see availability and pricing.

	EACH	CASE	PALLET
UPC:	849969001693		
Quantity:	1	1	
Volume (cf):	2.391		
Dim Weight (in ² /lb):	29.722		
Weight (lb):	34.500		
Length (in):	28.250		
Width (in):	15.810		
Height (in):	9.250		

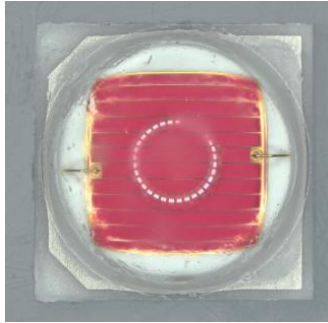
31. The below image shows a light panel from the Gavita CT after removal of a lens array. The panel has two different types of LEDs, white LEDs that appear yellow and red LEDs that appear red.



32. The images provide two views of an example white light emitting device. The image below-left shows ten blue-light emitting LEDs covered by a yellow wavelength converter to generate white light. The image below-right shows the blue LEDs after the removal of the wavelength converter. The wavelength converter includes distinct types of wavelength conversion substances including Yttrium-based and Strontium-based converters. The peak wavelength of the device is within the blue spectral range between 430 and 470 nanometers.



33. The image below depicts an example red LED, which has a peak wavelength different from a peak wavelength of light emitted by the above-described white light emitter. The peak wavelength of the red LED is within the range from 605 and 935 nanometers. The light emitted by the red LED includes a region in an irradiance spectrum having an irradiance that is greater than an irradiance of the light emitted from the white light emitting device at the same wavelength.



34. BFG's instructs purchasers of the Gavita Pro RS to operate "[u]sing the Gavita® Master EL3 Controller." <https://www.bfgsupply.com/order-now/product/0/865093/gavita-na-ct2000e-led-208-480v>. The manual for the EL3 Controller explains that it is a lighting controller for BFG's compatible fixtures.

35. Defendant's infringement has caused and is continuing to cause damage and irreparable injury to Plaintiffs. Plaintiffs will continue to suffer damage and irreparable injury unless and until that infringement is enjoined by this Court, as a remedy at law alone would be inadequate.

36. Defendant's infringement has occurred with knowledge of the '893 patent and knowledge that its acts constitute infringement. Defendant's continuing conduct, therefore, is willful.

37. Plaintiffs are entitled to injunctive relief and damages in accordance with 35 U.S.C. §§ 271, 281, 283, and 284.

COUNT 2

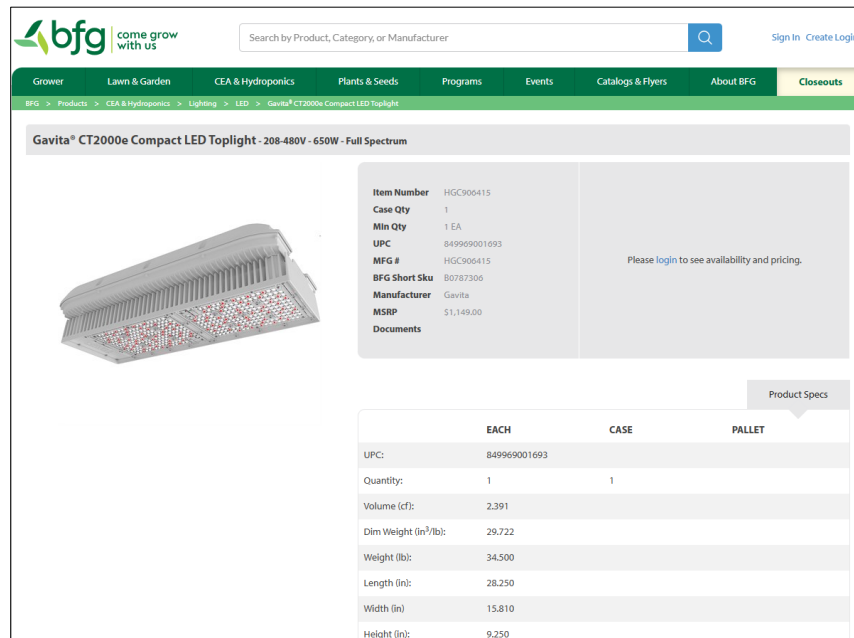
INFRINGEMENT OF U.S. PATENT NO. 8,872,419

EXEMPLARY CLAIM 1

38. Defendant has infringed and continues to infringe one or more claims of the '419 patent, including but not limited to exemplary claim 1, pursuant to 35 U.S.C. § 271(a), at least by without authority making, using, offering to sell and/or selling the Gavita CT and Gavita Pro RS within the United States.

39. The Gavita CT is a light emitting device. Product information for the Gavita CT

from BFG's website is reproduced below showing that it is a light emitting device.



Gavita® CT2000e Compact LED Toplight - 208-480V - 650W - Full Spectrum

Item Number	HGC900415
Case Qty	1
Min Qty	1 EA
UPC	849969001693
MFG #	HGC900415
BFG Short Sku	B0787306
Manufacturer	Gavita
MSRP	\$1,149.00
Documents	

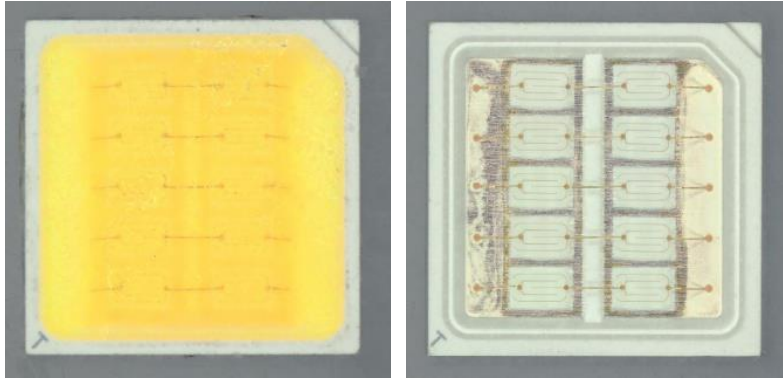
Please login to see availability and pricing.

	EACH	CASE	PALLET
UPC:	849969001693		
Quantity:	1	1	
Volume (cf):	2.391		
Dim Weight (in ³ /lb):	29.722		
Weight (lb):	34.500		
Length (in):	28.250		
Width (in):	15.810		
Height (in):	9.250		

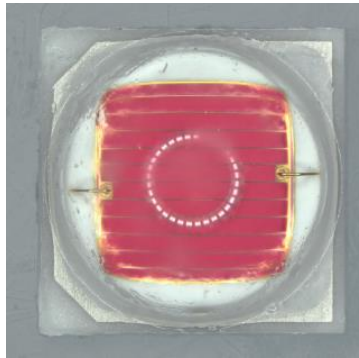
40. The below image shows a light panel from the Gavita CT after removal of a lens array. The panel has two different types of LEDs, white LEDs that appear yellow and red LEDs that appear red. The different types are disposed adjacent to each other.



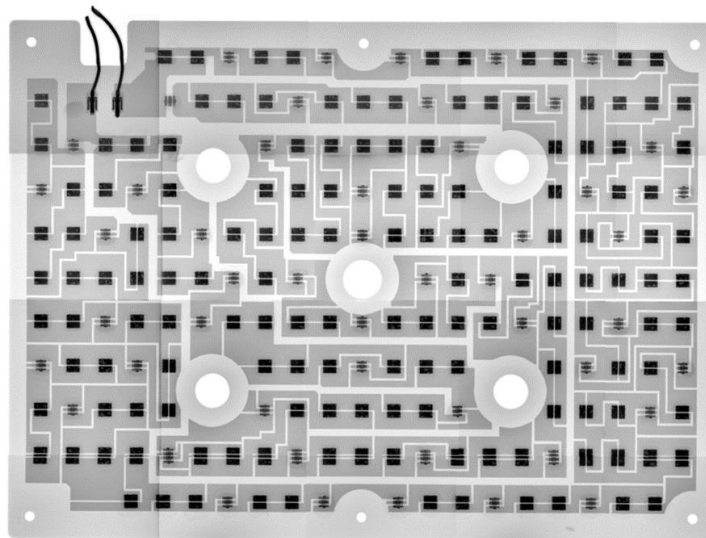
41. As shown in the images of an LED package from the Gavita CT includes at least one first light emitting element comprising at least one light emitting chip and yellow phosphor containing encapsulant on the upper portion of the light emitting chip. The first light emitting element is configured to emit light of a first wavelength.



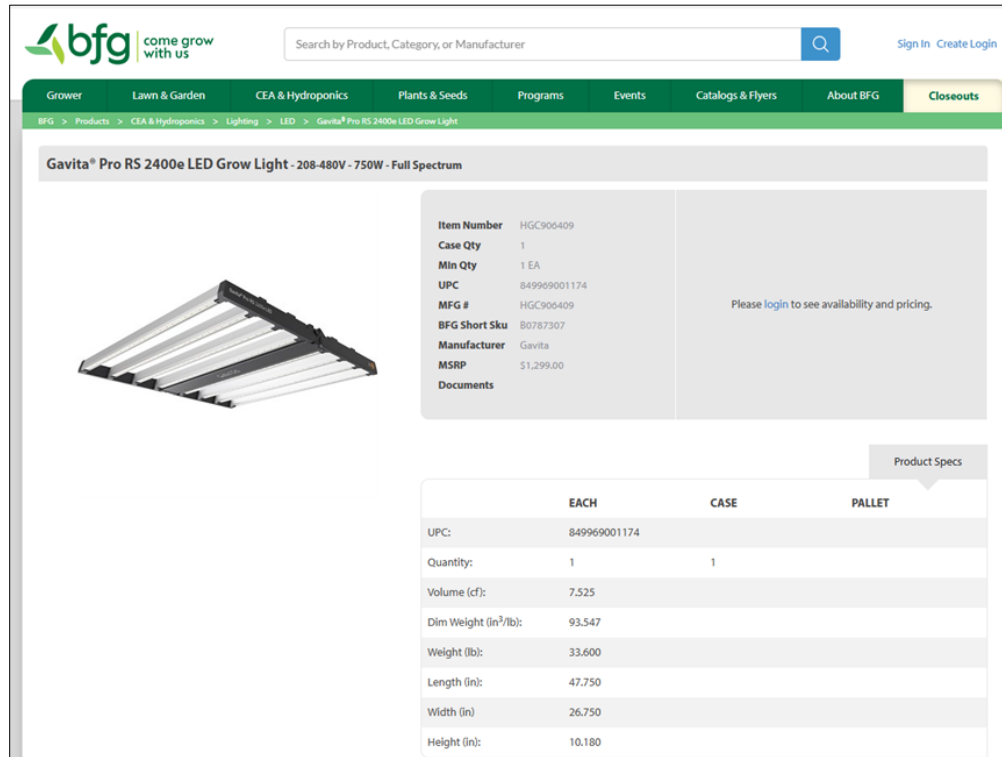
42. The image below depicts an example red LED, which is configured to emit light of a second wavelength.



43. The second light emitting element is connected in parallel with the first light emitting element as shown below.



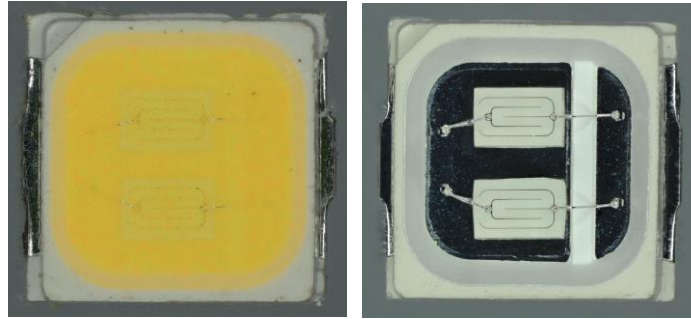
44. The Gavita Pro RS is a lighting emitting device. Product information for the Gavita Pro RS from BFG's website is reproduced below showing that it is a light emitting device.



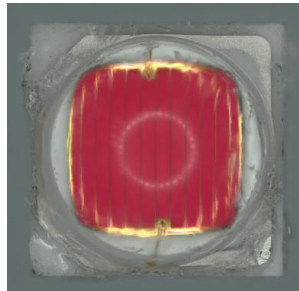
45. The below image shows a light bar from the Gavita Pro RS, which has two different types of LEDs, white LEDs that appear yellow and red LEDs that appear red. The different types are disposed adjacent to each other.



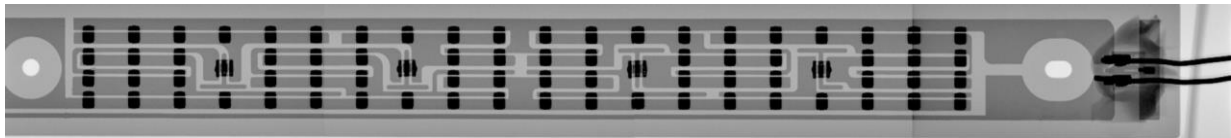
46. As shown in the images of an LED package from the Gavita Pro RS includes at least one first light emitting element comprising at least one light emitting chip and yellow phosphor containing encapsulant on the upper portion of the light emitting chip. The first light emitting element is configured to emit light of a first wavelength.



47. The image below depicts an example red LED, which is configured to emit light of a second wavelength.



48. The second light emitting element is connected in parallel with the first light emitting element as shown below.



49. Defendant's infringement has caused and is continuing to cause damage and irreparable injury to Plaintiffs. Plaintiffs will continue to suffer damage and irreparable injury unless and until that infringement is enjoined by this Court, as a remedy at law alone would be inadequate.

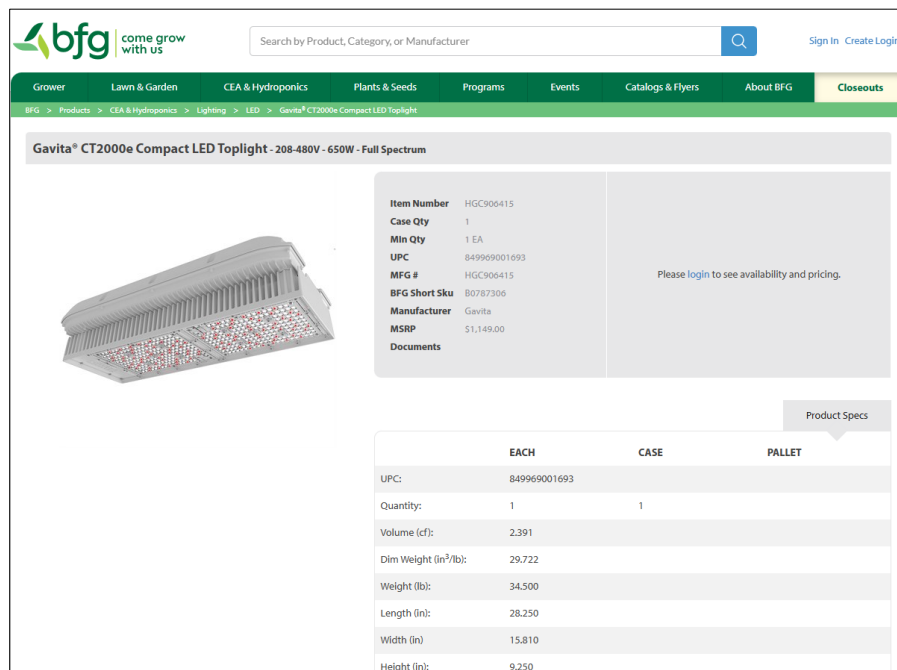
50. Defendant's infringement has occurred with knowledge of the '419 patent and knowledge that its acts constitute infringement. Defendant's continuing conduct, therefore, is willful.

51. Plaintiffs are entitled to injunctive relief and damages in accordance with 35 U.S.C. §§ 271, 281, 283, and 284.

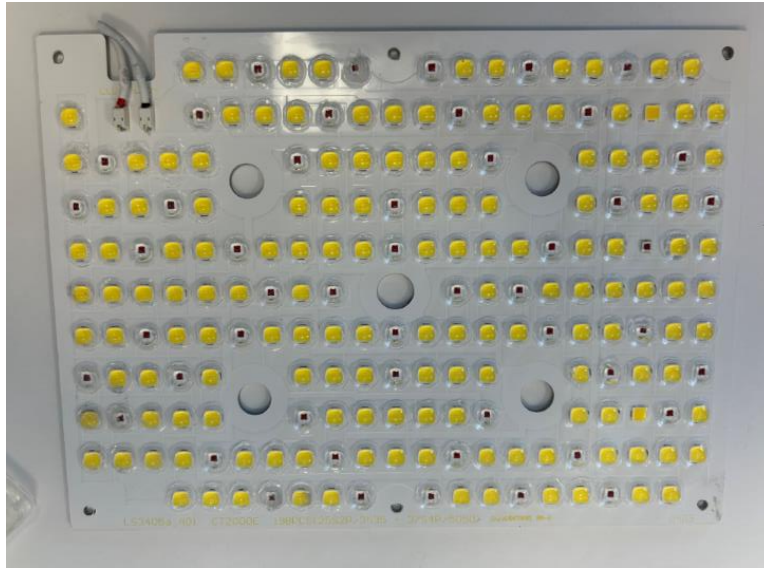
COUNT 3**INFRINGEMENT OF U.S. PATENT NO. 12,194,174****EXEMPLARY CLAIM 14**

52. Defendant has infringed and continues to infringe one or more claims of the '174 patent, including but not limited to exemplary claim 14, pursuant to 35 U.S.C. § 271(a), at least by without authority making, using, offering to sell and/or selling the Gavita CT and Gavita RS Pro within the United States.

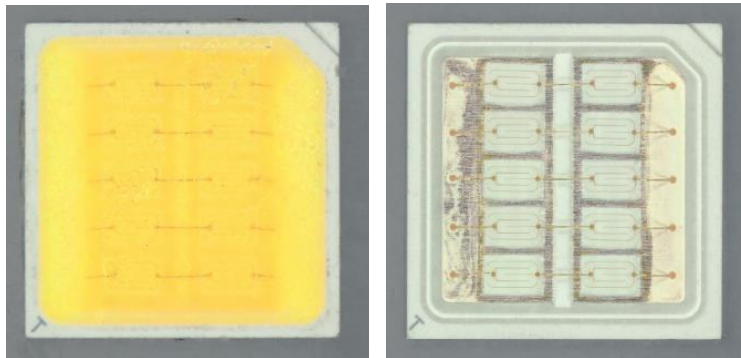
53. The Gavita CT is a lighting device. Product information for the Gavita CT from BFG's website is reproduced below showing that it is a lighting device.



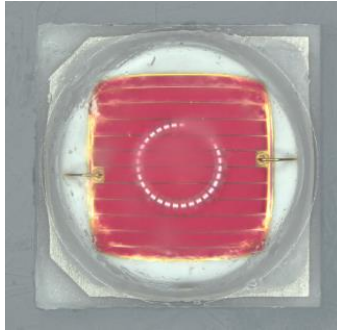
54. The below image shows a light panel from the Gavita CT after removal of a lens array. The panel has two different types of LEDs, white LEDs that appear yellow and red LEDs that appear red.



55. The images provide two views of an example white light emitting device. The image below left shows ten LEDs covered by a wavelength converter, which emit white light. The image below right shows the LEDs after removal of the wavelength converter. Each of the LEDs comprises an emitter disposed on a substrate and configured to emit a first light through its upper surface.



56. The image below depicts an example red LED, which comprises an emitter disposed on a second substrate. The red LED is configured to emit a second light including a different peak wavelength from the first light through its upper surface.



57. The housing of the Gavita CT is shown below. The two types of LEDs are disposed on the bottom surface of the housing. The light emitting surface of the example red LED is at a different elevation relative to the bottom of the housing from light emitting surface of the example white LED.



58. The white LEDs are each closer to each other than to the adjacent red LEDs in the longitudinal direction.

59. The Gavita Pro RS is a lighting device. Product information for the Gavita Pro RS from BFG's website is reproduced below showing that it is a lighting device.

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Gavita® Pro RS 2400e LED Grow Light - 208-480V - 750W - Full Spectrum

Item Number	HGC906409
Case Qty	1
Min Qty	1 EA
UPC	849969001174
MFG #	HGC906409
BFG Short Sku	B0787307
Manufacturer	Gavita
MSRP	\$1,299.00
Documents	

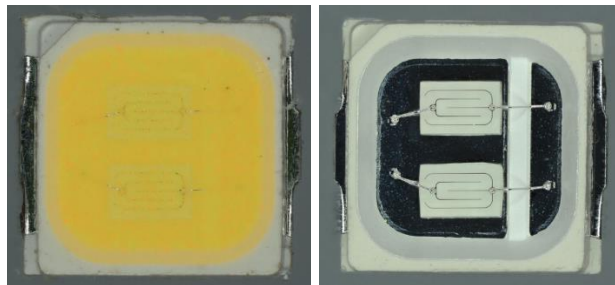
Please login to see availability and pricing.

	EACH	CASE	PALLET
UPC:	849969001174		
Quantity:	1	1	
Volume (cf):	7.525		
Dim Weight (in ³ /lb):	93.547		
Weight (lb):	33.600		
Length (in):	47.750		
Width (in):	26.750		
Height (in):	10.180		

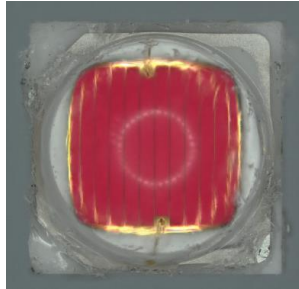
13 60. The below image shows a light bar from the Gavita Pro RS, which has two different
14 types of LEDs, white LEDs that appear yellow and red LEDs that appear red.



18 61. The images provide two views of an example white light emitting device. The
19 image below left shows two LEDs covered by a wavelength converter, which emit white light. The
20 image below right shows the LEDs after removal of the wavelength converter. Each of the LEDs
21 comprises an emitter disposed on a substrate and configured to emit a first light through its upper
22 surface.



62. The image below depicts an example red LED, which comprises an emitter disposed on a second substrate. The red LED is configured to emit a second light including a different peak wavelength from the first light through its upper surface.



63. The housing of the Gavita Pro RS is shown below. The two types of LEDs are disposed on the bottom surface of the housing. The light emitting surface of the example red LED is at a different elevation relative to the bottom of the housing from light emitting surface of the example white LED.



64. As shown in the image below white LEDs are each closer to each other than to the adjacent red LEDs in the longitudinal direction.



65. Defendant's infringement has caused and is continuing to cause damage and irreparable injury to Plaintiffs. Plaintiffs will continue to suffer damage and irreparable injury unless and until that infringement is enjoined by this Court, as a remedy at law alone would be

inadequate.

66. Defendant's infringement has occurred with knowledge of the '174 patent and knowledge that its acts constitute infringement. Defendant's continuing conduct, therefore, is willful.

67. Plaintiffs are entitled to injunctive relief and damages in accordance with 35 U.S.C. §§ 271, 281, 283, and 284.

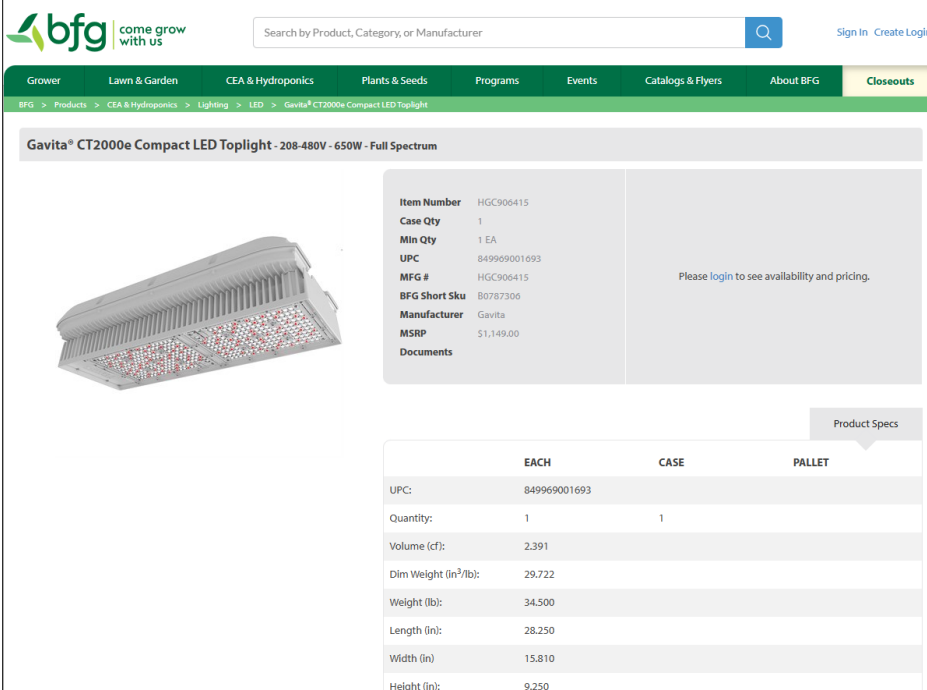
COUNT 4

INFRINGEMENT OF U.S. PATENT NO. 11,978,837

EXEMPLARY CLAIM 8

68. Defendant has infringed and continues to infringe one or more claims of the '837 patent, including but not limited to exemplary claim 8, pursuant to 35 U.S.C. § 271(a), at least by without authority making, using, offering to sell and/or selling the Gavita CT and Gavita Pro RS within the United States.

69. The Gavita CT is a light emitting module unit. Product information for the Gavita CT from BFG's website is reproduced below.



Gavita® CT2000e Compact LED Toplight - 208-480V - 650W - Full Spectrum

Item Number	HGC906415
Case Qty	1
Min Qty	1 EA
UPC	849969001693
MFG #	HGC906415
BFG Short Sku	B0787306
Manufacturer	Gavita
MSRP	\$1,149.00
Documents	

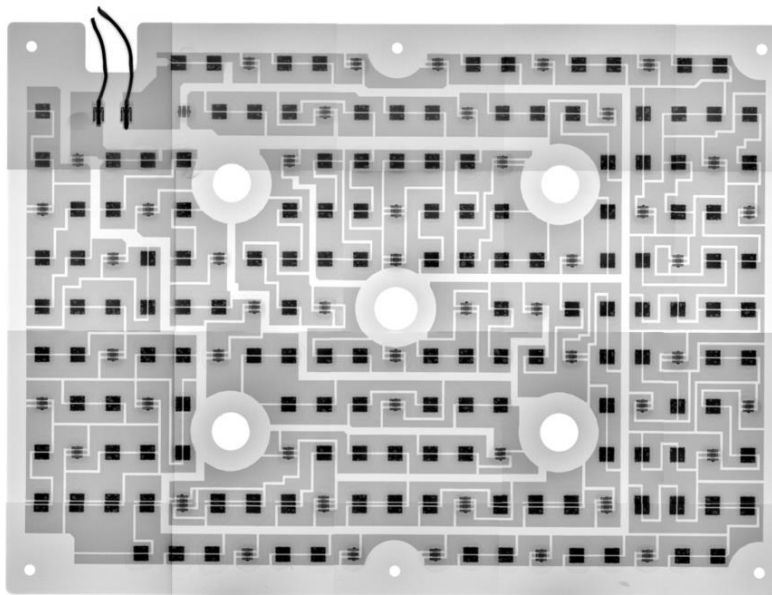
Please login to see availability and pricing.

	EACH	CASE	PALLET
UPC:	849969001693		
Quantity:	1	1	
Volume (cf):	2.391		
Dim Weight (in ³ /lb):	29.722		
Weight (lb):	34.500		
Length (in):	28.250		
Width (in):	15.810		
Height (in):	9.250		

70. The below image shows a light panel from the Gavita CT after removal of a lens array. The light panel comprises a circuit board.



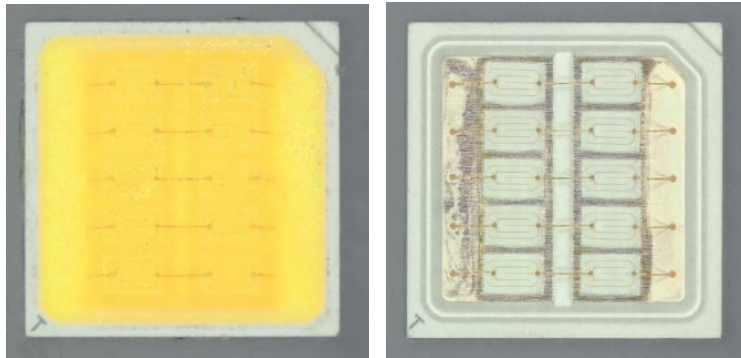
71. Below is an x-ray image of the circuit board. As shown in the upper left corner of the image above and x-ray image below, the circuit board has a pair of electrodes formed on the upper surface.



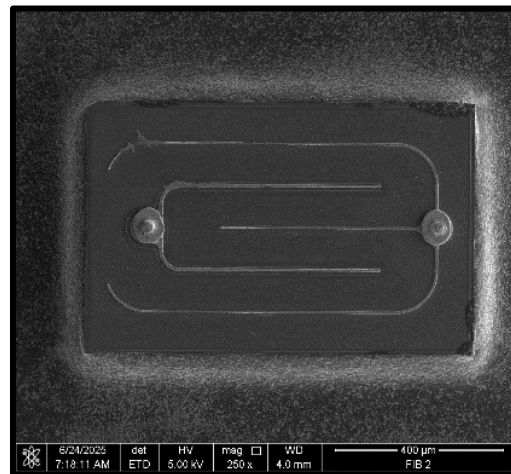
72. Also shown in the x-ray image above is a wiring pattern by which the LED packages are connected to external power. The wiring pattern includes pairs of pads by which the

LED packages are connected to power via the above-described electrodes. The wiring pattern includes both series and parallel connections. For the parallel connections, a pad is connected to two light emitters to act as a common electrode.

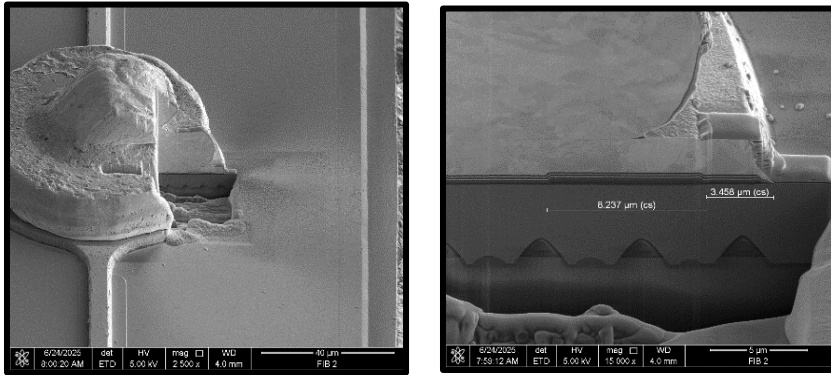
73. Below are a pair of example images of one type of light emitter from the Gavita CT. In the below left image, a yellow encapsulation is shown covering the upper surface of LED chips. The image below right shows the LED chips after removal of the encapsulation. The chips are gallium nitride-based semiconductors.



74. Below is a scanning electron microscope (“SEM”) image of the upper surface of a sample chip that was removed from the Gavita CT.



75. Next, by milling a hole into the chip using a focused ion beam (“FIB”), the layer structure near the p-contact is revealed.



76. Layers of metal are provided under the p-contact, including reflective metal layers provided on the upper surface of the chip to reflect light traveling upwards from the active layer toward the p-contact. The reflective metal layers include an aluminum layer that is both thermally conductive and reflective. In addition, because the reflective metal layer is provided on the upper surface of the chip, it is disposed between the chip and the covering encapsulation.

77. The Gavita Pro RS is a light emitting module unit. Product information for the Gavita Pro RS from BFG's website is reproduced below.

Gavita® Pro RS 2400e LED Grow Light - 208-480V - 750W - Full Spectrum

Item Number	HGC906409
Case Qty	1
Min Qty	1 EA
UPC	849969001174
MFG #	HGC906409
BFG Short Sku	B0787307
Manufacturer	Gavita
MSRP	\$1,299.00
Documents	

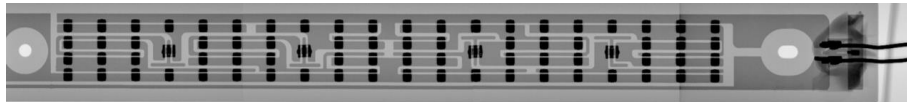
Please login to see availability and pricing.

	EACH	CASE	PALLET
UPC:	849969001174		
Quantity:	1	1	
Volume (cf):	7.525		
Dim Weight (in ³ /lb):	93.547		
Weight (lb):	33.600		
Length (in):	47.750		
Width (in):	26.750		
Height (in):	10.180		

78. The below image shows a light bar from the Gavita Pro RS, which comprises a circuit board.

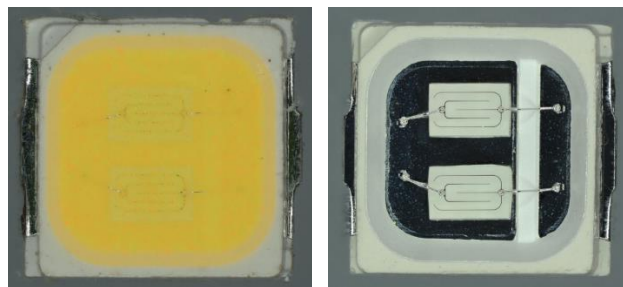


79. Below is an x-ray image of the circuit board. As shown at the right edge of the image above and x-ray image below, the circuit board has a pair of electrodes formed on the upper surface.

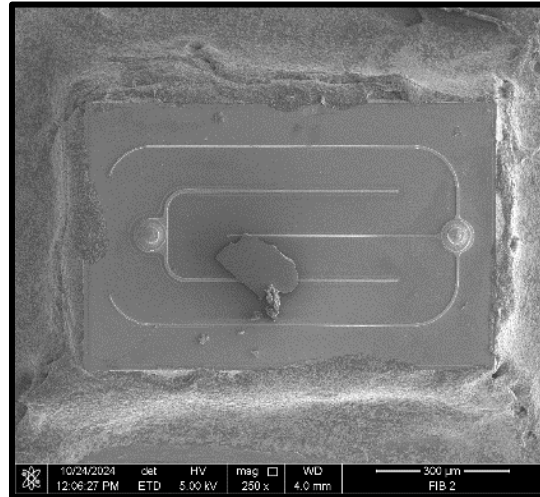


80. Also shown in the x-ray image above is a wiring pattern by which the LED packages are connected to external power. The wiring pattern includes pairs of pads by which the LED packages are connected to power via the above-described electrodes. The wiring pattern includes both series and parallel connections. For parallel connections, a pad is connected to two light emitters to act as a common electrode.

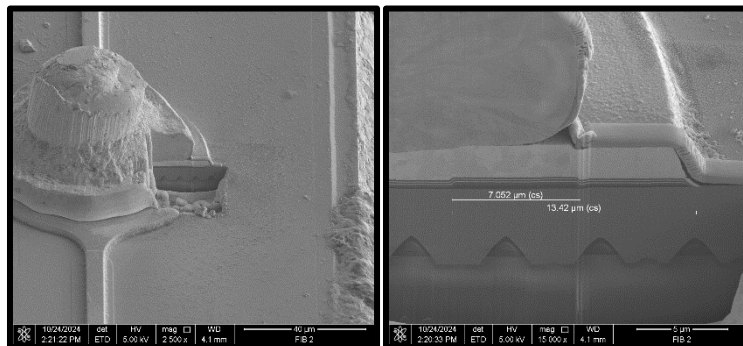
81. Below are a pair of example images of one type of light emitter from the Gavita Pro RS. In the below left image, a yellow encapsulation is shown covering the upper surface of LED chips. The image below right shows the LED chips after removal of the encapsulation. The chips are gallium nitride-based semiconductors.



82. Below is a SEM image of the upper surface of a sample chip that was removed from the Gavita Pro RS.



83. Next, by milling a hole into the chip using a FIB, the layer structure near the p-contact is revealed.



84. Layers of metal are provided under the p-contact, including reflective metal layers provided on the upper surface of the chip to reflect light traveling upwards from the active layer toward the p-contact. The reflective metal layers include an aluminum layer that is both thermally conductive and reflective. In addition, because the reflective metal layer is provided on the upper surface of the chip, it is disposed between the chip and the covering encapsulation.

85. Defendant's infringement has caused and is continuing to cause damage and irreparable injury to Plaintiffs. Plaintiffs will continue to suffer damage and irreparable injury unless and until that infringement is enjoined by this Court, as a remedy at law alone would be inadequate.

86. Defendant's infringement has occurred with knowledge of the '837 patent and knowledge that its acts constitute infringement. Defendant's continuing conduct, therefore, is

willful.

87. Plaintiffs are entitled to injunctive relief and damages in accordance with 35 U.S.C. §§ 271, 281, 283, and 284.

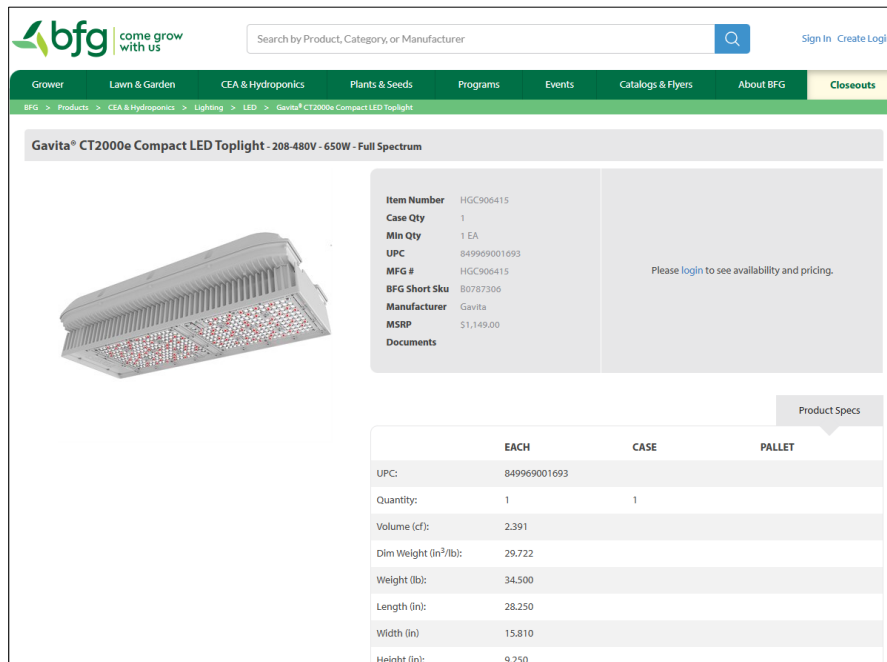
COUNT 5

INFRINGEMENT OF U.S. PATENT NO. 12,298,552

EXEMPLARY CLAIM 15

88. Defendant has infringed and continues to infringe one or more claims of the '552 patent, including but not limited to exemplary claim 15, pursuant to 35 U.S.C. § 271(a), at least by without authority making, using, offering to sell and/or selling the Gavita CT within the United States.

89. The Gavita CT is a light emitting device. Product information for the Gavita CT from BFG's website is reproduced below showing that it is a light emitting device.



Gavita® CT2000e Compact LED Toplight - 208-480V - 650W - Full Spectrum

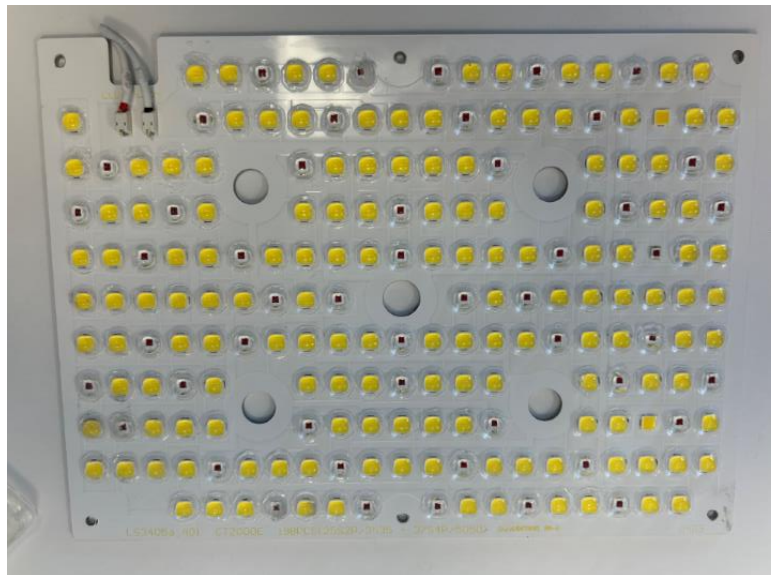
Item Number: HGC906415
Case Qty: 1
Min Qty: 1 EA
UPC: 849969001693
MFG #: HGC906415
BFG Short Sku: B0787306
Manufacturer: Gavita
MSRP: \$1,149.00
Documents

Please [login](#) to see availability and pricing.

Product Specs

	EACH	CASE	PALLET
UPC:	849969001693		
Quantity:	1	1	
Volume (cf):	2.391		
Dim Weight (in ³ /lb):	29.722		
Weight (lb):	34.500		
Length (in):	28.250		
Width (in):	15.810		
Height (in):	9.250		

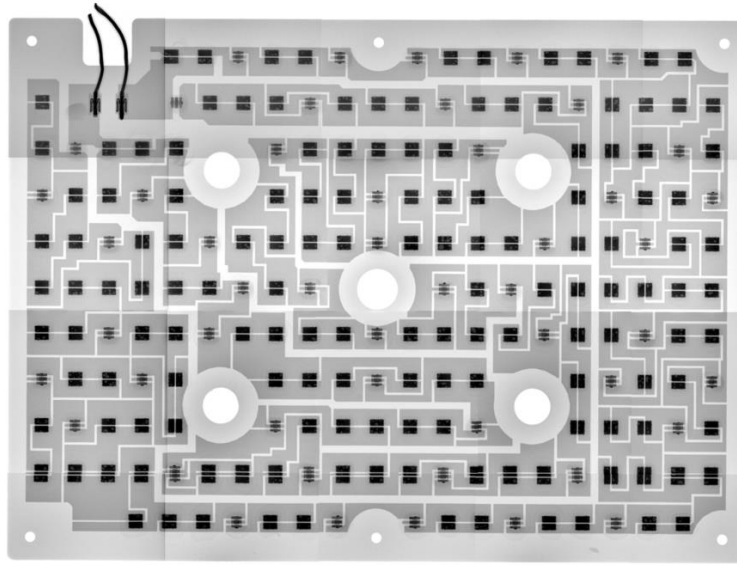
90. The below images show a light panel from the Gavita CT. The first image shows the panel, which includes a lens array provided over a substrate and the second image shows the substrate after removal of the lens array. The lens array acts as an optical layer configured to diffuse the light emitted from the light emitters.



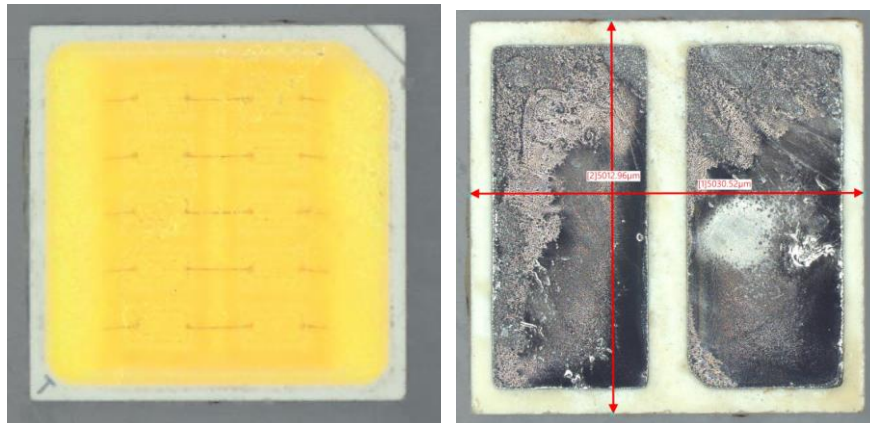
91. The panel has two different types of light emitters, white LEDs that appear yellow and red LEDs that appear red.

92. As shown in the images above, the substrate is coated in white to provide broad spectrum reflection of light emitted from the light emitters.

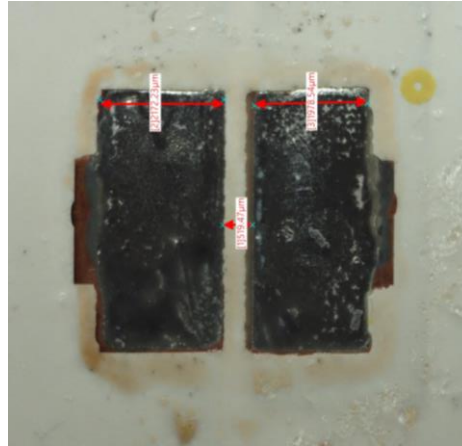
93. Below is an x-ray image of the circuit board depicting the wiring pattern used to provide power to the LED packages.



94. Below are a pair of images of an LED package from the Gavita CT. The left image shows the light emitting side and the right image shows the reverse side having two contact electrodes. The package is slightly longer in the horizontal direction than in the vertical direction.



95. Below is a close-up view of a region of the substrate after removal of the light emitting package. Removal of the package reveals a pair of pad electrodes that were electrically connected to the pad electrodes shown in the image above.



96. As shown in the image above, the gap between the pad electrodes is smaller than the above-described lengths but greater than 50 micrometers.

97. Defendant's infringement has caused and is continuing to cause damage and irreparable injury to Plaintiffs. Plaintiffs will continue to suffer damage and irreparable injury unless and until that infringement is enjoined by this Court, as a remedy at law alone would be inadequate.

98. Defendant's infringement has occurred with knowledge of the '552 patent and knowledge that its acts constitute infringement. Defendant's continuing conduct, therefore, is willful.

99. Plaintiffs are entitled to injunctive relief and damages in accordance with 35 U.S.C. §§ 271, 281, 283, and 284.

COUNT 6

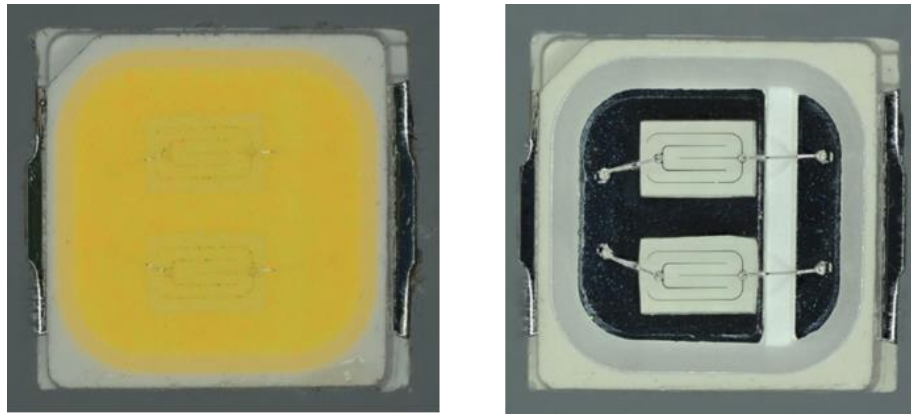
INFRINGEMENT OF U.S. PATENT NO. 8,314,440

EXEMPLARY CLAIM 1

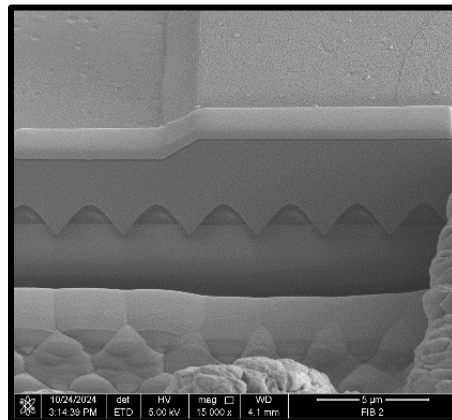
100. Defendant has infringed and continues to infringe one or more claims of the '440 patent, including but not limited to exemplary claim 1, pursuant to 35 U.S.C. § 271(a), at least by without authority making, using, offering to sell and/or selling the Gavita Pro RS within the United States.

101. The Gavita Pro RS includes an LED package comprising a light emitting diode (LED) chip. The images of a package from the Gavita Pro RS are reproduced below. The image

below left shows the package after removal from the Gavita Pro RS. The image below right shows the package after removal of the resin encapsulant.

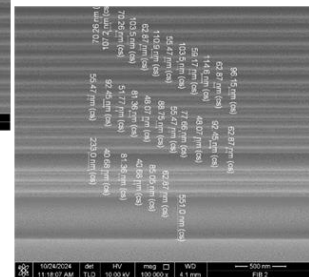
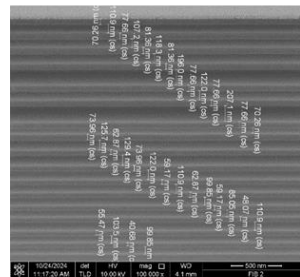
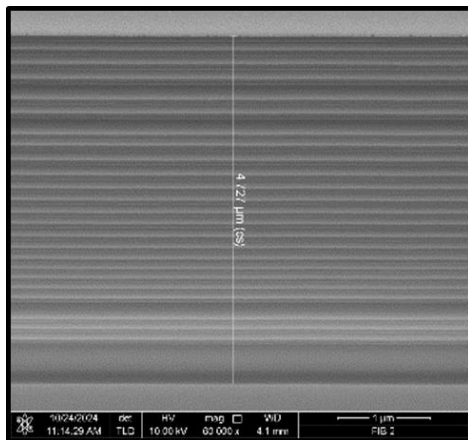


102. Below is a SEM image of the side surface of a hole created using a FIB in an LED chip from the Gavita Pro RS. The image shows the epitaxial structure formed above a patterned sapphire substrate. The epitaxial structure comprises a light-emitting structure including from bottom to top, a first conductivity type (n-type) semiconductor layer, an active layer, and a second conductivity type (p-type) semiconductor layer.



103. The SEM images below show an alternately laminated bottom structure located on the bottom of the substrate. As shown in the below images, the alternately laminated bottom structure comprises dielectric pairs comprising relatively thick first material layers of SiO₂ and relatively thin second material layers of TiO₂. The dielectric pairs comprises a first set of dielectric pairs comprising the first material layer and the second material layer each having an optical thickness less than $\lambda/4$ (λ is the center of the visible spectrum), a second set of dielectric pairs

comprising the first material layer and the second material layers, one of the first material layer and the second material layer having an optical thickness less than $\lambda/4$ and the other having an optical thickness greater than $\lambda/4$, and the third set of dielectric pairs comprising the first material layer and the second material layer, each of the first material layer and the second material layer having an optical thickness greater than $\lambda/4$. The first dielectric pairs are located farther from the substrate than the third dielectric pairs.



104. Defendant's infringement has caused and is continuing to cause damage and irreparable injury to Plaintiffs. Plaintiffs will continue to suffer damage and irreparable injury unless and until that infringement is enjoined by this Court, as a remedy at law alone would be inadequate.

105. Defendant's infringement has occurred with knowledge of the '440 patent and knowledge that its acts constitute infringement. Defendant's continuing conduct, therefore, is willful.

106. Plaintiffs are entitled to injunctive relief and damages in accordance with 35 U.S.C. §§ 271, 281, 283, and 284.

COUNT 7

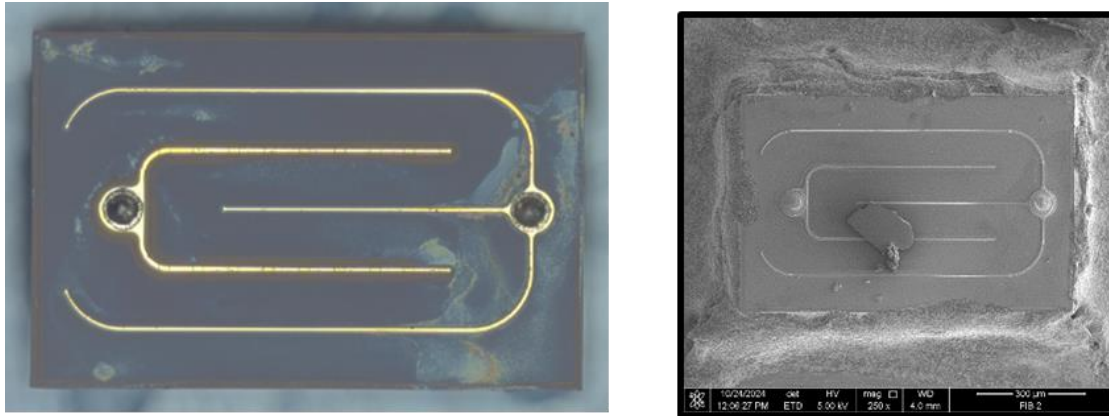
INFRINGEMENT OF U.S. PATENT NO. 10,217,912

EXEMPLARY CLAIM 1

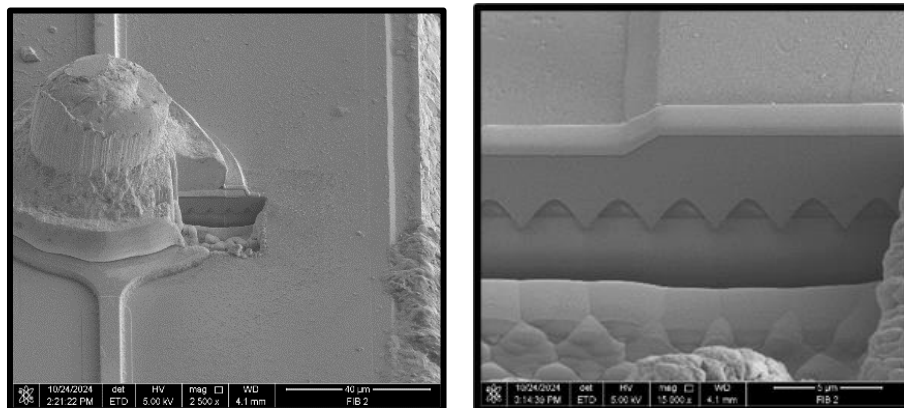
107. Defendant has infringed and continues to infringe one or more claims of the '912

1 patent, including but not limited to exemplary claim 1, in violation of 35 U.S.C. § 271(a), at least
 2 by without authority making, using, offering to sell and/or selling the Gavita Pro RS within the
 3 United States.

4 108. The Gavita Pro RS includes a plurality of light emitting diodes (LED). Optical and
 5 SEM images of an LED from the Gavita Pro RS are reproduced below.

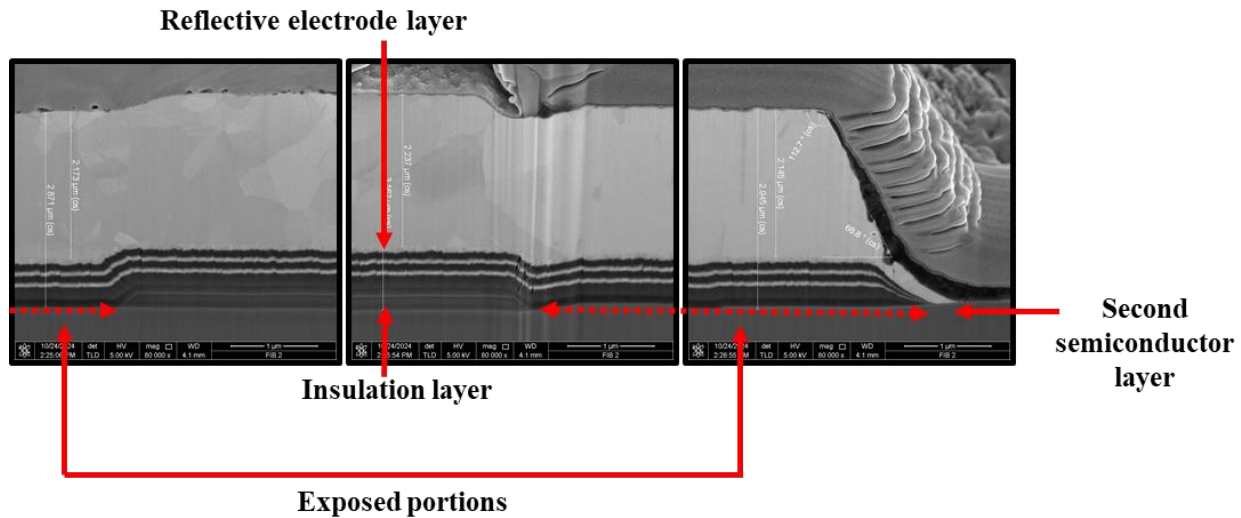


13 109. Next, by milling a hole into the chip using a FIB, the layer structure near the p-
 14 contact is revealed. The layer structure includes, from bottom to top: a substrate, a first
 15 semiconductor layer, an active layer, and a second semiconductor layer.

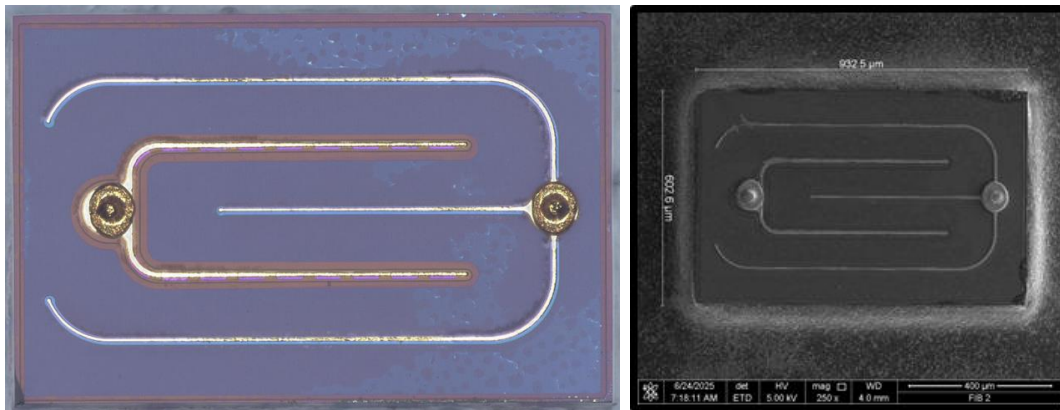


23 110. Below is an enlarged image of the inner surface of the milled hole showing
 24 additional details. The image identifies an insulation layer formed over the stacked structure and
 25 contacting the second (p-type) semiconductor layer. The insulation layer leaves open exposed
 26 portions that provide openings where contact occurs between a reflective layer comprised of
 27 aluminum formed over the stacked structure and the second (p-type) semiconductor layer. The

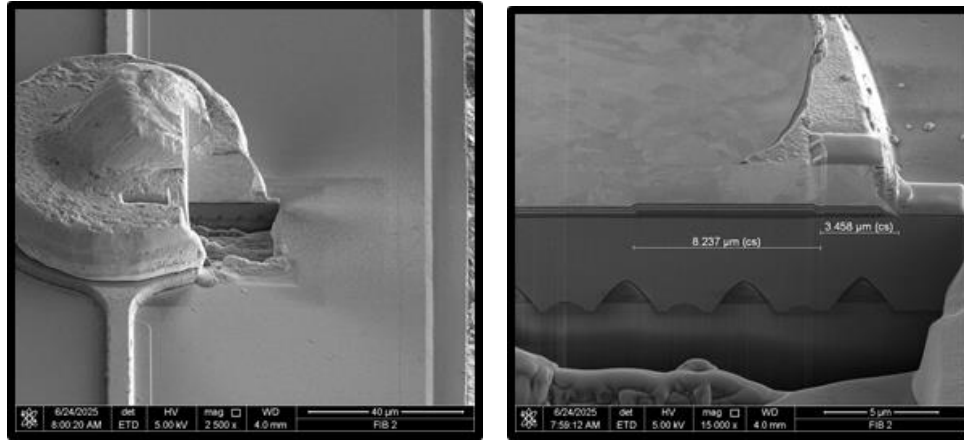
exposed portions are shown in the image below beneath the p-type contact.



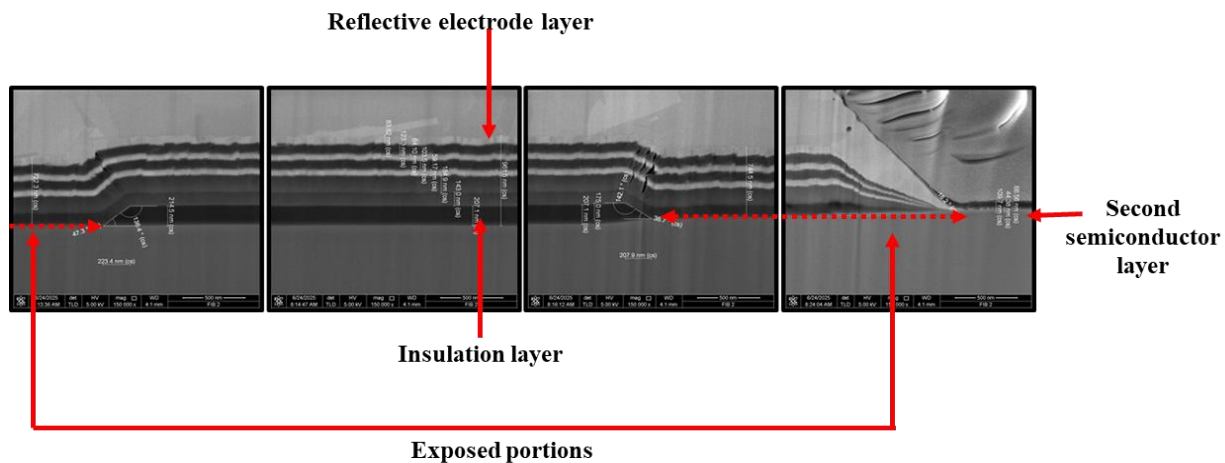
111. The Gavita CT includes a plurality of light emitting diodes (LED). Optical and SEM images of an LED from the Gavita CT are reproduced below.



112. Next, by milling a hole into the chip using a FIB, the layer structure near the p-contact is revealed. The layer structure includes, from bottom to top: a substrate, a first semiconductor layer, an active layer, and a second semiconductor layer.



113. Below is an enlarged image of the inner surface of the milled hole showing additional details. The image identifies an insulation layer formed over the stacked structure and contacting the second (p-type) semiconductor layer. The insulation layer leaves open exposed portions that provide openings where contact occurs between a reflective layer comprised of aluminum formed over the stacked structure and the second (p-type) semiconductor layer. The exposed portions are shown in the image below beneath the p-type contact.



114. Defendant's infringement has caused and is continuing to cause damage and irreparable injury to Plaintiffs. Plaintiffs will continue to suffer damage and irreparable injury unless and until that infringement is enjoined by this Court, as a remedy at law alone would be inadequate.

115. Defendant's infringement has occurred with knowledge of the '912 patent and

1 knowledge that its acts constitute infringement. Defendant's continuing conduct, therefore, is
2 willful.

3 116. Plaintiffs are entitled to injunctive relief and damages in accordance with 35 U.S.C.
4 §§ 271, 281, 283, and 284.

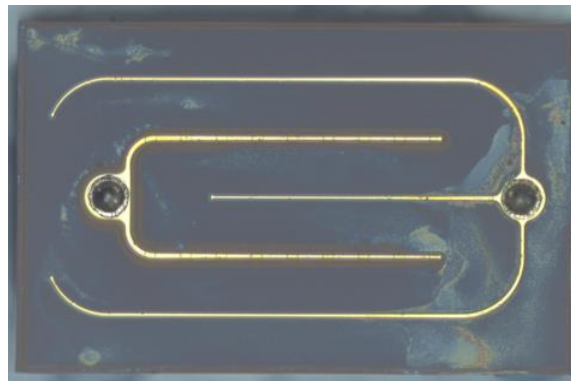
5 **COUNT 8**

6 **INFRINGEMENT OF U.S. PATENT NO. 9,041,032**

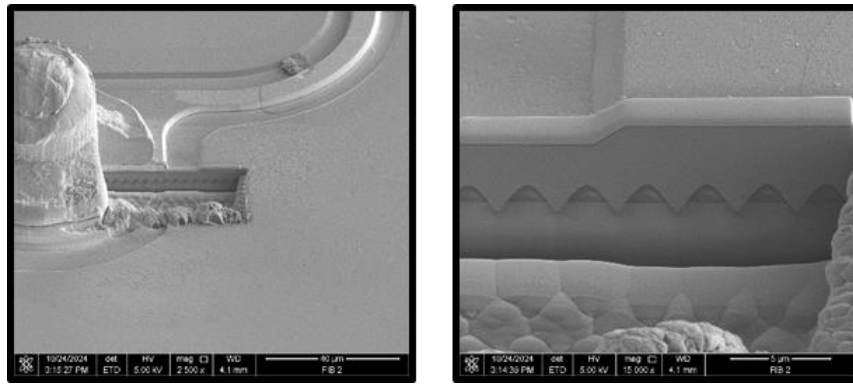
7 **EXEMPLARY CLAIM 19**

8 117. Defendant has infringed and continues to infringe one or more claims of the '032
9 patent, including but not limited to exemplary claim 19, pursuant to 35 U.S.C. § 271(a) at least by
10 without authority offering to sell and/or selling the Gavita Pro RS within the United States.

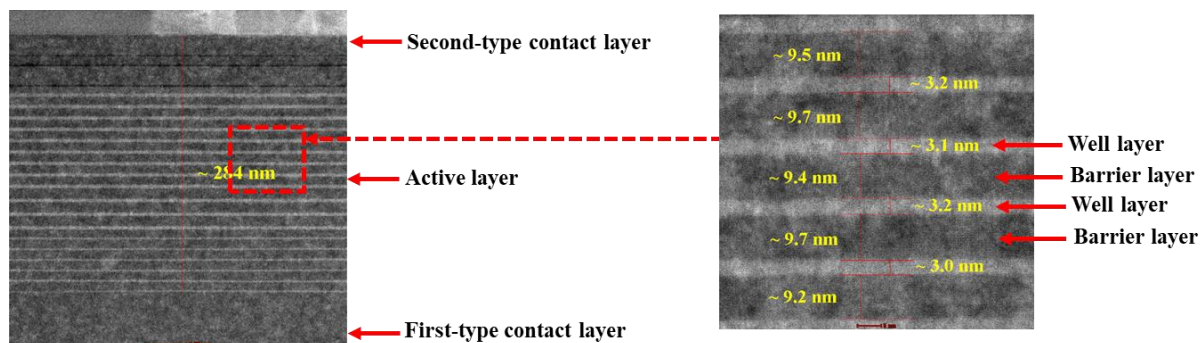
11 118. The Gavita Pro RS includes a plurality of light emitting diodes. An optical image
12 of the light emitting diode from the Gavita Pro RS is reproduced below.
13



20 119. The images below were created using SEM after a hole was milled into the light
21 emitting diode using a FIB near the n-contact. The image below right provides an enlarged view
22 of the side of the milled hole, showing a first-type contact layer comprising silicon doped GaN, a
23 second-type contact layer comprising magnesium doped GaN and an active layer comprising
24 InAlGaN between the contact layers.



120. The active layer of the light emitting diode includes barrier and well layers. The barrier layers are comprised of AlGaIn, whereas the well layers are comprised of InGaIn. The barrier layers also include AlGaIn-based quantum dots that form a strain enhancing layer within the barrier layers. These high aluminum-containing quantum dots have a lower lattice constant than the low aluminum-containing AlGaIn barrier layer, thus providing compressive strain to the well layer.



121. Defendant's infringement has caused and is continuing to cause damage and irreparable injury to Plaintiffs. Plaintiffs will continue to suffer damage and irreparable injury unless and until that infringement is enjoined by this Court, as a remedy at law alone would be inadequate.

122. Defendant's infringement has occurred with knowledge of the '032 patent and knowledge that its acts constitute infringement. Defendant's continuing conduct, therefore, is willful.

123. Plaintiffs are entitled to injunctive relief and damages in accordance with 35 U.S.C. §§ 271, 281, 283, and 284.

PRAYER FOR RELIEF

WHEREFORE, the Plaintiffs requests that the Court enter judgment in their favor and against BFG, as follows:

A. A judgment that Defendant infringe the '893, '419, '174, '837, '552, '440, '912, and '032 patents;

B. A preliminary and permanent injunction restraining and enjoining Defendant, its officers, partners, agents, servants, employees, parents, subsidiaries, divisions, affiliate corporations, joint ventures, other related business entities and all other persons acting in concert, participation, or in privity with them, and their successors and assigns, from infringing the '893, '419, '174, '837, '552, '440, '912, and '032 patents;

C. An award of damages to Plaintiffs Seoul Semiconductor and Seoul Viosys arising from Defendant's past and continuing infringement up until the date Defendant is finally and permanently enjoined from further infringement, including compensatory damages;

D. A determination that Defendant's infringement of one or more of the '893, '419, '174, '837, '552, '440, '912, and '032 patents was willful, and a trebling of damages pursuant to 35 U.S.C. § 284;

E. A determination that this is an exceptional case and awarding the Plaintiffs' attorneys' fees pursuant to 35 U.S.C. § 285; An order awarding the Plaintiffs the costs and expenses that they have incurred in prosecuting this action;

F. An order awarding the Plaintiffs pre- and post-judgment interest on their damages; and

G. Such other and further relief in law or in equity as this Court deems just and proper.

JURY DEMAND

Plaintiffs Seoul Semiconductor and Seoul Viosys respectfully request a jury trial on all issues so triable.

1 DATED: July 22, 2025

2 Respectfully submitted,

3 By: s/ Philip P. Mann

4 Philip P. Mann, WSBA No. 28860

5 **MANN LAW GROUP PLLC**

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7 Bainbridge Island, WA 98110

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9 email: phil@mannlawgroup.com

10 Together with:

11 Jennifer Jonak (*pro hac*
12 *forthcoming*)

13 **Jonak Law Group, P.C.**

14 1711 Willamette St, Suite 301 #
15 145

16 Eugene OR 97401

17 541-525-9102

18 jenny@jonak.com

19 Rafael Perez-Pineiro

20 (*pro hac forthcoming*)

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22 **PLLC**

23 1101 Brickell Avenue

24 South Tower, Suite 800

25 Miami FL, 33131

26 Tel: 305-728-883

27 rperez@brickellip.com

28 **Counsel for Plaintiffs**